

CLAIMS

1. A method of producing a part made of a silver-based alloy, characterized in that it consists in taking an
5 initial alloy containing silver and at least one metal soluble in silver at contents of between 0.04 and 4 at% and capable of forming a stable oxide at high temperature, and then carrying out in succession the following operations:
10 - oxygenation of the initial alloy so as to dissolve oxygen into the silver that it contains;
 - partial oxidation of the soluble metal so as to form precipitate particles that prevent the alloy grains from coarsening; and
15 - complete oxidation, on at least an outer layer, of the soluble metal into an oxide stable at high temperature.
2. The method as claimed in claim 1, characterized in
20 that the oxygenation is carried out by exposing the initial alloy to a stream of oxygen.
3. The method as claimed in claim 2, characterized in
25 that the oxygenation takes place at a temperature of about 300°C.
4. The method as claimed in one of claims 1 to 3, characterized in that the initial alloy is a part having the desired final form and in that the complete oxidation
30 takes place straight after the partial oxidation.
5. The method as claimed in one of claims 1 to 3, characterized in that the initial alloy is a part having an intermediate form, such as a wire, a tube or a strip,
35 in that the partial oxidation is carried out by placing the oxygenated part for about one hour in a vacuum or in

an inert atmosphere, at a temperature of between 400 and 850°C, and in that, before its complete oxidation, the part is made into its final form.

5 6. The method as claimed in one of claims 1 to 3,
characterized in that the initial alloy is in the form of
powder, in that said powder is compacted before the
oxygenation while maintaining an open porosity over its
entire thickness, in that the part thus obtained is
10 extruded hot, which causes it to undergo partial
oxidation, and in that, before its complete oxidation,
the part is made into its final form.

15 7. The method as claimed in one of claims 1 to 3,
characterized in that the initial alloy is in powder
form, in that said powder is compacted after the
oxygenation, in that the part thus obtained is extruded
hot, which causes it to undergo partial oxidation, and in
that, before its complete oxidation, the part is made
20 into its final form.

8. The method as claimed in one of claims 1 to 7,
characterized in that the complete oxidation is carried
out by exposing the part to an oxidizing atmosphere at a
25 temperature of between 400 and 850°C.

9. A silver-based alloy, characterized in that in that
it contains at least one metal which is soluble in silver
and capable of forming a stable oxide at high
30 temperature, and which, by internal oxidation, hardens
it, while still providing a final grain size of less than
20 µm.

10. The alloy as claimed in claim 9, characterized in
35 that said metal is selected from magnesium, aluminum,
titanium, gallium, manganese and zinc, or a combination

of these metals.

11. The alloy as claimed in either of claims 9 and 10,
characterized in that the content of said metal, alone or
5 in combination, is between 0.04 and 4 at%.